IN THE CLAIMS

Claim 1 (currently amended): A current mode pipeline analog-to-digital converter apparatus including a plurality of stages; each respective stage of said plurality of stages comprising:

(a) a respective residue amplifier including a first amplifying unit and a second amplifying unit; each of said first and second amplifying units having an inverting input locus, a non-inverting input locus and an output locus; each of said first and second amplifying units receiving a differential input data signal at one input locus of said inverting input locus and said non-inverting input locus; the other input loci of said first and second amplifying units other than said one input locus receiving a first current signal in a first current direction providing a DC level setting signal for each of said first and second amplifying units; signals presented at said output loci substantially representing said input data signal less said DC level setting signal; and

(b) a counter-current signal generating unit coupled with said other input loci at a single coupling locus; said counter-current signal generating unit presenting a second current signal in a second current direction opposite to said first current direction providing a DC level control signal for each of said first and second amplifying units.

Claim 2 (original): A current mode pipeline analog-to-digital converter apparatus including a plurality of stages as recited in Claim 1 wherein said first current signal is provided by an NPN digital-to-analog converter unit.

Claim 3 (original): A current mode pipeline analog-to-digital converter apparatus including a plurality of stages as recited in Claim 1 wherein said counter-current signal generating unit is a PNP digital-to-analog converter unit.

Claim 4 (original): A current mode pipeline analog-to-digital converter apparatus including a plurality of stages as recited in Claim 2 wherein said counter-current signal generating unit is a PNP digital-to-analog converter unit.

Claim 5 (original): An analog-to-digital converter apparatus having a plurality of stages; each respective stage of said plurality of stages comprising:

(a) a residue amplifier having a first amplifier unit and a second amplifier unit; each of said first amplifier unit and said second amplifier unit having a first input locus, a second input locus and an output locus; said first and second amplifier units cooperating in receiving a differential input data signal at said first input loci of said first and second amplifier units;

(b) a DC level setting signal unit coupled with said second input loci of said first and second amplifier units; said DC level setting signal unit providing a DC level setting current in a first current direction to said second input loci; and

(c) a counter-current signal generating unit coupled with said second input loci via a single coupling locus common with said second input loci; said counter-current signal generating unit providing a control current signal to said second input loci in a second current direction opposite to said first current direction; said control current signal providing a DC level control for each of said first and second amplifier units.

Claim 6 (original): An analog-to-digital converter apparatus having a plurality of stages as recited in Claim 5 wherein said DC level setting current unit is an NPN digital-to-analog converter unit.

Claim 7 (original): An analog-to-digital converter apparatus having a plurality of stages as recited in Claim 5 wherein said counter-current signal generating unit is a PNP digital-to-analog converter unit.

Claim 8 (original): An analog-to-digital converter apparatus having a plurality of stages as recited in Claim 6 wherein said counter-current signal generating unit is a PNP digital-to-analog converter unit.

Claim 9 (original): A method for reducing noise in input signals to a residue amplifier in an analog-to-digital converter apparatus; the residue amplifier having a first amplifier unit and a second amplifier unit; each of said first amplifier unit and said

second amplifier unit having a first input locus, a second input locus and an output locus; said first and second amplifier units cooperating in receiving a differential input data signal at said first input loci of said first and second amplifier units; a DC level setting signal unit coupled with said second input loci of said first and second amplifier units provides a DC level setting current in a first current direction to said second input loci; the method comprising the steps of :

(a) providing a counter-current signal generating unit coupled with said second input loci via a single coupling locus common with said second input loci; and

(b) operating said counter-current signal generating unit to provide a control current signal to said second input loci in a second current direction opposite to said first current direction to establish a DC level control for each of said first and second amplifier units.

Claim 10 (original): A method for reducing noise in input signals to a residue amplifier in an analog-to-digital converter apparatus as recited in Claim 9 wherein said DC level setting unit is an NPN digital-to-analog converter unit.

Claim 11 (original): A method for reducing noise in input signals to a residue amplifier in an analog-to-digital converter apparatus as recited in Claim 9 wherein said counter-current signal generating unit is a PNP digital-to-analog converter unit.

Claim 12 (original): A method for reducing noise in input signals to a residue amplifier in an analog-to-digital converter apparatus as recited in Claim 10 wherein said counter-current signal generating unit is a PNP digital-to-analog converter unit.